



DEPARTMENT OF HEALTH & HUMAN SERVICES

PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

FOR US POSTAL SERVICE DELIVERY:

Office of Laboratory Animal Welfare
6700B Rockledge Drive, Suite 2500, MSC 6910
Bethesda, Maryland 20892-6910
Home Page: <http://grants.nih.gov/grants/olaw/olaw.htm>

FOR EXPRESS MAIL:

Office of Laboratory Animal Welfare
6700B Rockledge Drive, Suite 2500
Bethesda, Maryland 20817
Telephone: (301) 496-7163
Facsimile: (301) 402-7065

March 5, 2019

Re: Animal Welfare Assurance
A4051-01 [OLAW Case W]

Dr. Wayne E. Cascio
Deputy Director, National Health and
Environment Effects Research Laboratory
U.S. Environmental Protection Agency
EPA-MD-B305-01, 109 T.W. Alexander Drive
Research Triangle Park, NC 27709

Dear Dr. Cascio,

The Office of Laboratory Animal Welfare (OLAW) acknowledges receipt of your February 26, 2019 letter reporting an adverse event involving zebrafish housing equipment at the US Environmental Protection Agency, following up on an initial telephone report on November 7, 2018. According to the information provided, OLAW understands that a leak in a sump pump pipe led to the alarm sounding. The Animal Facility Manager was directed to attempt to fix the leak and then to turn off the electricity to the tank system. The decision to turn off the electricity was not supported by the Attending Veterinarian (AV) and institutional staff as it could negatively impact the fish.

The corrective actions consisted of moving fish into other functioning racks, fixing the leak, replacing the sump, and testing the water quality in the new and affected systems. No fish died but embryo production initially declined. The preventive measures consisted of updating checklists and water quality log sheets for each rack; developing emergency procedures in case of future system failures; providing the updated documents and procedures to the Institutional Animal Care and Use Committee; obtaining equipment to allow for isolation of fish, water quality testing, and aeration; and informing staff to call the AV regarding any animal welfare problems caused by equipment failure.

Based on its assessment of this explanation, OLAW understands that measures have been implemented to correct and reduce the likelihood of a recurrence of this problem. OLAW concurs with the actions taken by the institution to comply with the PHS Policy on Humane Care and Use of Laboratory Animals.

Sincerely,

Axel Wolff, M.S., D.V.M.
Deputy Director
Office of Laboratory Animal Welfare

cc: IACUC Chair



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
National Health and Environmental Effects Research Laboratory
Research Triangle Park, NC 27711

OFFICE OF RESEARCH AND DEVELOPMENT

February 26, 2019

Dr. Brent Morse
Director of Compliance and Oversight
Office of Laboratory Animal Welfare
Rockledge One, Suite 360
6705 Rockledge Drive, MSC-7982
Bethesda, MD 28092-7982

Dear Dr. Morse;

The purpose of this letter is to describe an animal welfare issue at our institution (OLAW Assurance number; A4051-01) which was identified on Friday November 2, 2018. Your office was given a preliminary notice of this issue via telephone contact to you by our IACUC Chair (Dr. Michael G. Narotsky) on November 6, 2018. We would like to inform your office of the IACUC's disposition of the issue.

The animal care contractor animal facility manager (AFM) received an alarm notice from the zebrafish rack alarm system at approximately 10 PM on November 1, 2018. Upon receiving the alarm, the AFM went into the facility. The housing system in alarm consists of five interconnected fish racks. The institution houses additional stand-alone fish racks. The AFM noted that the alarms did not convey the extent of the issue. She found a leak around a pipe at one of the interconnected rack's sump tank. She consulted the rack manufacturer. After several unsuccessful attempts to fix the leak, as recommended by the manufacturer, she was told that the manufacturer recommended shutting down the electricity to the interconnected racks. She shut down the electricity as recommended at 1 AM on November 2, 2018. There were about 83 zebrafish-occupied tanks on the interconnected five-rack system, with approximately 2,000 zebrafish affected.

The attending veterinarian (AV) and the research point of contact were informed the following morning, Friday, November 2, 2018, of the leak and subsequent shutdown of the electricity. With the arrival of more staff and the manufacturer's technical service representative, the electricity had been turned on to the interconnected racks again, and the leak was active. Both the researcher and AV disagreed with the manufacturer's recommendation to shut off the electricity to the rack for 6 hours as this would affect not only the zebrafish but also the nitrifying bacteria needed to break down the ammonia in the water. There was discussion between the manufacturer's representative, the animal program director, the AV, the researcher, and the AFM. It was decided to move the youngest fish (about 1,325 zebrafish in 53 tanks) from the

interconnected system to stand-alone racks in hopes of keeping all the fish alive. The system was shut down again and the leaking sump then drained in order to fix the sump leak.

Most fish were moved to two other functioning racks--one of which already housed healthy fish, whereas the other was just coming on line and did not yet house any fish. Water quality testing of the sumps and three rack systems involved was not conducted until several hours after fish were moved to new racks. Water quality testing continued on two tanks per rack and the sump of each rack once a day during the weekend. Water quality parameters were not ideal on the first day, November 2; however, results were within acceptable parameters on Monday, November 5, 2018. Water quality testing continued once or twice daily during the remainder of the week of November 5, 2018, when we expect ammonia spikes due to increased fish numbers on new racks, and possibly on the interconnected racks and values were a little high or normal on all affected racks.

The IACUC chair was notified of the event on Monday November 5, 2018. On November 5, 2018, no fish had been found dead or otherwise affected from the equipment failure. However, as ammonia spikes are expected, the AV, researchers, and animal care staff will continue to monitor. Breeding success, healthy embryo yield, and research were affected by the event. The week of November 5-9, 2018 embryo numbers were about 50% less than average and embryo quality was also decreased. The next week November 12-16, 2018 embryo numbers were 25% less than average.

The manufacturer recently notified us that the sump came from a bad batch of sumps with defective glue. New sumps were shipped, and the sump was replaced on February 15, 2019. During sump replacement, air pumps and air stones maintain sump water oxygenation to keep the biofilters alive. In the future, if the power is interrupted or if a sump needs to be drained, the portable portions of the biofilters will be moved to an alternate holding area where the water will also be oxygenated.

Toward preventing recurrences and minimizing effects of future equipment failures, the AFM and animal program director will:

- Update checklists and water quality log sheets for each rack. These sheets will be readily available for review by AV, animal care staff, researchers, and the IACUC on each animal room door.
- Write an emergency procedure document clearly delineating the recommended course of events in the case of future major zebrafish equipment failure.
- Provide the IACUC with copies of the updated documents, log sheets, and operating procedures for review and record keeping purposes.
- Order appropriate equipment so that racks can be isolated if there is a future emergency, water quality testing can occur easily, and aeration can be provided to the sensitive sump bacteria.

Both the animal care staff and scientific staff have been reminded that, in the future, the AV should be notified if there is an equipment failure that has the potential to affect animal welfare, as soon as the issue is detected.

We hope these measures satisfactorily address the issue. Please contact Michael Narotsky (**Exemption 6** or narotsky.michael@epa.gov) if you have any questions or comments.

Sincerely,



Wayne E. Cascio, MD
Director, NHEERL
Institutional Official



Michael G. Narotsky, PhD
NHEERL IACUC Chair

cc:

Dr. Leslie Jarrell, Attending Veterinarian
Jaimie Graff, Director of Animal Resources and Research Support
AAALAC, International

Morse, Brent (NIH/OD) [E]

From: OLAW Division of Compliance Oversight (NIH/OD)
Sent: Tuesday, February 26, 2019 4:22 PM
To: Narotsky, Michael; OLAW Division of Compliance Oversight (NIH/OD)
Cc: Cascio, Wayne; **Exemption 6** Jarrell, Leslie
Subject: RE: Final report of animal welfare issue

Thank you for providing this report. We will send an official response soon.

Best regards, Brent Morse

Brent C. Morse, DVM, DACLAM
Director
Division of Compliance Oversight
Office of Laboratory Animal Welfare
National Institutes of Health

Please note that this message and any of its attachments are intended for the named recipient(s) only and may contain confidential, protected or privileged information that should not be distributed to unauthorized individuals. If you have received this message in error, please contact the sender.

From: Narotsky, Michael [mailto:Narotsky.Michael@epa.gov]
Sent: Tuesday, February 26, 2019 4:02 PM
To: OLAW Division of Compliance Oversight (NIH/OD) <olawdco@od.nih.gov>
Cc: Cascio, Wayne <Cascio.Wayne@epa.gov>; **Exemption 6Exemption 6Exemption 6**
Jarrell, Leslie <Jarrell.Leslie@epa.gov>; accredit@AAALAC.org
Subject: Final report of animal welfare issue

Dear Dr. Morse,

We are submitting the attached PDF as the final report pertaining to a recent animal welfare issue at our institution (OLAW Assurance number A4051-01).

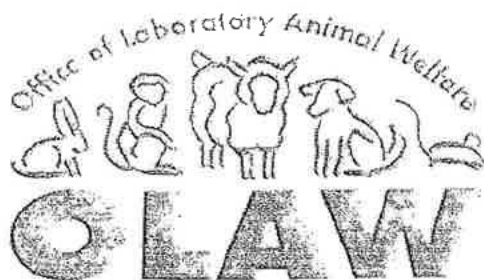
Please let me know if you have any questions or comments.

Sincerely,
Mike Narotsky

Michael G. Narotsky, Ph.D.
NHEERL IACUC Chair
Research Toxicologist
U.S. Environmental Protection Agency
Endocrine Toxicology Branch, Toxicity Assessment Division
NHEERL (MD B105-04)
Research Triangle Park, NC 27711

Exemption 6
Exemption 6(fax)

narotsky.michael@epa.gov



Initial Report of Noncompliance

By: BMDate: 11/7/18Time: Voicemail from 11/6Name of Person reporting: Michael Nurotski, ChairTelephone #: Exemption 6

Fax #:

Email:

Name of Institution: USA-EPAAssurance number: A4051Did incident involve PHS funded activity? _____Funding component: _____Was funding component contacted (if necessary): _____

What happened? Leak in zebrafish sump. Fish transferred to other tanks. Sump repaired. No fish deaths.

Species involved: ZebrafishPersonnel involved: _____Dates and times: 11/1/18Animal deaths: NoProjected plan and schedule for correction/prevention (if known): _____Repair sump.Update SOP on equipment failure.

Projected submission to OLAW of final report from Institutional Official:

< 30 d

OFFICE USE ONLY

Case # _____